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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ULM, JOHN D	

ART UNIT	PAPER NUMBER
1649	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,065	SHINJO ET AL.	
	Examiner	Art Unit	
	John D. Ulm	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *1-4,13 and 15-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-1114* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

SDD

1) Claims 1 to 18 are pending in the instant application.

2) Claims 1 to 4, 13 and 15 to 18, as well as claim 14 in so far as it relates to and antibody, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in correspondence filed 06 September of 2005. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3) Claim 14 is objected to because it depends from a non-elected base claim.

4) Claim 12 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must depend from other claims in the alternative only. See MPEP § 608.01(n). Accordingly, this claim has not been further treated on the merits.\

5) Applicant is reminded of the proper content of an abstract of the disclosure. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making

and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or **speculative applications** of the invention and should not compare the invention with the prior art (M.P.E.P. 608.01(b)).

Where applicable, the abstract should include the following:

(1) if a machine or apparatus, its organization and operation;

(2) if an article, its method of making;

(3) if a chemical compound, its identity and use;

(4) if a mixture, its ingredients;

(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because it refers to clearly speculative applications of the claimed invention. There is absolutely no evidence of record which would support a conclusion that a protein or nucleic acid of the instant invention is in any way associated with any of the diseases or disorders listed in the abstract of the instant specification. A new abstract in compliance with M.P.E.P. 608.01(b) is required.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6) Claims 5 to 11 and 14 are rejected under 35 U.S.C. § 101 because they are drawn to an invention with no apparent or disclosed specific and substantial credible utility. The instant application has provided a description of two isolated DNAs encoding proteins identified therein as "VRL-2a" and "VLR-2b", and the proteins encoded thereby. The instant application does not disclose an established specific biological role for a VLR-2 protein or its significance to a particular disease, disorder of physiological process which one would wish to manipulate for a desired clinical effect.

It is clear from the instant specification that the receptor protein described therein as vanilloid receptor like (VRL)-2 is what is termed an "orphan receptor" in the art. This is a protein whose cDNA has been isolated because of its similarity to known proteins. There is little doubt that, after complete characterization, this protein may be found to have a specific and substantial credible utility. This further characterization, however, is part of the act of invention and until it has been undertaken Applicant's claimed invention is incomplete. Whereas one could readily employ a putative receptor protein of the instant invention in an assay to identify ligands thereto the information obtained thereby would be of little use until one discovers the identity of those physiological processes moderated by that putative receptor. Because the instant specification has failed to credibly identify a specific physiological process which has been shown to be influenced by the activation or inhibition of a putative receptor protein of the instant invention an artisan would have no way of predicting what effects the administration of that ligand to an organism would have. If one can not predict the effects that the administration of a ligand of the putative receptor of the instant invention is going to

have on an organism then it is unclear as to what practical benefit is derived by the public from the identification of that ligand.

The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966), in which a novel compound which was structurally analogous to other compounds which were known to possess anti-cancer activity was alleged to be potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. § 101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The court held that:

> "The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", " [u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", " [i]t is not a reward for the search, but compensation for its successful conclusion."

The instant claims are drawn to an isolated polynucleotide encoding a protein of as yet undetermined function or biological significance. There is absolutely no evidence of record or any line of reasoning that would support a conclusion that a VLR-2 protein of the instant invention is associated in any way with the plurality of disorders that are listed in lines 11 to 16 on page 3 of the instant specification. Until some actual and

specific significance can be attributed to the protein identified in the specification as VRL-2, or the gene encoding it, the instant invention is incomplete.

The protein encoded by a DNA of the instant invention is a compound known to be structurally analogous to proteins that are known in the art as ion channels or ionotropic receptors. In the absence of a knowledge of the natural ligands or biological significance of this protein, there is no immediately obvious patentable use for it. To employ a protein of the instant invention in the identification of substances which inhibit or induce its activity is clearly to use it as the object of further research which has been determined by the courts to be a utility which, alone, does not support patentability. Since the instant specification does not disclose a credible "real world" use for VRL-2 then the claimed invention is incomplete and, therefore, does not meet the requirements of 35 U.S.C. § 101 as being useful.

The disclosure in the instant specification that the VRL-2 protein described therein is structurally related to the capsaicin receptor VR-1 does not support a conclusion that VRL-2 will bind vanilloids and/or capsaicin. It is well known in the art that proteins belonging to the family of ionotropic receptors can activated by a variety of compounds such as glutamate, glycine, acetylcholine and capsaicin, as well as other stimuli such as pH, voltage and ion differentials, heat and pressure. Because the differences between the amino acid sequence of the VRL-2 protein of the instant invention and that of hVR-1 are greater than the similarities, one would not conclude that these two proteins respond to the same spectrum of stimuli or modulate the same cellular processes. It was well known in the art prior to the making of the instant

invention that receptor proteins belonging to the same structural family, such as the G protein-coupled adrenergic and dopamine receptors, could share substantial amino acid sequence similarity and still modulate completely different physiological processes in response to different but structurally related ligands. The administration of dopamine to an individual certainly has a profoundly different effect than the administration of adrenaline even though these two compounds are structurally related and the receptors for these two related compounds share substantial structural as well as amino acid sequence similarities. This position is further support by the text in lines 26 to 30 on page 6 of the instant specification, which shows that even within the family of VR-1 related proteins, the nature of the stimuli which activates these proteins can differ substantially from protein to protein. One would not reasonably conclude, based upon the limited amino acid sequence similarity between the VRL-2 protein of the instant invention and hVR-1 that the effects of clinical administration of an agonist to one of these receptors would be predictive of the clinical effects of administering an agonist to the other. Because one can not predict to which stimuli the instant receptor will respond by reviewing its amino acid sequence one can not conclude that VRL-2 will have the same utility as VR-1 simply because these two proteins share a limited degree of amino acid sequence similarity.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7) Claims 5 to 11 and 14 are rejected under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to use the instant invention for those reasons given above with regard to the rejection of these claims under 35 U.S.C. § 101.

8) Claims 10 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. These claims encompass subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention.

8.1) Claim 10 is directed to "[a]n expression vector for the expression of a human vanilloid receptor-like protein in a recombinant host cell wherein said expression vector contains the polynucleotide of claims 5". Claim 5 is not limited to a polynucleotide encoding a human vanilloid receptor-like protein. Neither the instant specification nor the art of record provides the guidance needed to produce an expression vector for the expression of a specified protein wherein that vector does not contain a polynucleotide encoding that protein.

8.2) Claim 14 is drawn to a "diagnostic kit for diagnosing a disease or a susceptibility to a disease associated with biological function of a human vanilloid receptor-like protein". The instant specification, however, fails to identify with particularity any specific disease or disorder that is "associated" with a protein of the instant invention or how that disease or disorder can be diagnosed by employing a nucleic acid of claim 5. A patent is granted for a completed invention, not the general suggestion of an idea and how that idea might be developed into the claimed invention.

In the decision of *Genentec, Inc, v. Novo Nordisk*, 42 USPQ 2d 100,(CAFC 1997), the court held that:

> "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable" and that "[t]ossing out the mere germ of an idea does not constitute enabling disclosure". The court further stated that "when there is no disclosure of any specific starting material or of any of the conditions under which a process is to be carried out, undue experimentation is required; there is a failure to meet the enablement requirements that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art", "[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement".

The instant specification is not enabling because one can not following the guidance presented therein and practice the method required by the preamble of claim 14 without first making a substantial inventive contribution.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9) Claims 5 to 11 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are vague and indefinite because the metes and bounds of the limitation "variants thereof" are undeterminable. As indicated above, the text in lines 9 to 12 on page 4 of the instant specification states that the term "variant", when applied to an amino acid sequence of the instant invention, includes "any substitution of, variation of, modification of, replacement of, deletion of or addition of one or more amino acids from or to the

sequence providing the resultant polypeptide has VRL-2 activity". Because the specification does not identify a specific "VRL-2 activity" which is definitive of a "variant" then it is unclear as to what constitutes a "VRL-2 activity".

Further, the limitation "% identity" requires a reference to a specific sequence. Because section (b) of claim 5 encompasses "variants thereof", the metes and bounds of claims 6 to 8 are undeterminable.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
>
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

35 U.S.C. § 119(e)(1) states that:

> An application for patent filed under section 111(a) or section 363 of this title for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in a provisional application filed under section 111(b) of this title, by an inventor or inventors named in the provisional application, shall have the
> same effect, as to such invention, as though filed on the date of the provisional application filed under section 111(b) of this title, if the application for patent filed under section 111(a) or section 363 of this title is filed not later than 12 months after the date on which the provisional application was filed and if it contains or is amended to contain a specific reference to the provisional application. No application shall be entitled to the benefit of an earlier filed provisional

application under this subsection unless an amendment containing the specific reference to the earlier filed provisional application is submitted at such time during the pendency of the application as required by the Director. The Director may consider the failure to submit such an amendment within that time period as a waiver of any benefit under this subsection. The Director may establish procedures, including the payment of a surcharge, to accept an unintentionally delayed submission of an amendment under this subsection during the pendency of the application.

10) Claims 5 to 11 and 14 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by each of the Delany et al. patent publication (WO 00/32766, 08 Jun. 2000, cited by Applicant), the Masters et al. patent publication (WO 01/34805, 17 May 2001, of record) and the Strotmann et al. publication (NATURE CELL BIOLOGY Vol. 2, pp. 695-702, Oct. 2000, of record).

10.1) Delany et al. provided a written description of an isolated cDNA encoding a protein identified therein as hVR3 and having an amino acid sequence (SEQ ID NO:5) which is 99.6% identical to SEQ ID NO:2 of the instant application.

10.2) Masters et al. provided a written description of an isolated cDNA encoding a protein identified therein as hVR3 and having an amino acid sequence (SEQ ID NO:3) which is identical to SEQ ID NO:2 of the instant application.

10.3) Strotmann et al. provided a written description of an isolated cDNA encoding a protein identified therein as OTRPC4 and having an amino acid sequence which is 99.9% identical to SEQ ID NO:2 of the instant application.

Applicant is advised that the instant application can only receive benefit under 35 U.S.C. § 119(e) from an earlier application which meets the requirements of 35 U.S.C. § 112, first paragraph, with respect to the now claimed invention. Because the instant application does not meet the requirements of 35 U.S.C. § 112, first paragraph, for those reasons given above and it is a divisional of application Serial Number

60/208,156, the prior application also does not meet those requirements and, therefore, is unavailable under 35 U.S.C. § 119(e).

11) Claims 5 to 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by the Caterina et al. publication (Nature: 3892 816-824, 1997, cited by Applicant). Because any polynucleotide "is capable of hybridizing" to any other polynucleotide under the appropriate conditions claims 5, 9 and 14 encompass any "isolated and or purified polynucleotide". When nucleic acid hybridization reactions are performed, denaturing factors such as heat and formamide are employed to minimize the non-specific binding (hybridizing) of nucleic acid molecules to one another. By controlling these factors a practitioner of the art can control the degree of sequence similarity that is needed between the nucleotide sequences of two different nucleic acid molecules before they will form a heteroduplex (hybridize to one another). Since all nucleic acid molecules will "hybridize" to one another under certain conditions the complementary strand of the cDNA encoding the capasaicin receptor which was described by Caterina et al. would certainly hybridize to SEQ ID NO:2 or 4 of the instant invention under the appropriate conditions and, therefore that cDNA as well as the vector and host cell containing it are encompassed by the instant claims..

Further, section (b) of claim 5 encompasses "variants" of the sequences recited therein. The text in the fourth and fifth paragraphs on page 4 of the instant specification indicates that the limitation "variants" allows for unlimited amino acid or nucleotide substitutions so long as the referenced "polypeptide has VRL-2 activity". The text in lines 29 to 33 on page 6 of the instant specification states that the VR1 protein of

Caterina et al. and a VRL-2 protein of the instant invention are predicted to be cation channels that are activated by heat. Therefore, in accordance with the definitions provided by the instant specification, the VR1 protein of Caterina et al. is a "variant" of the VRL-2 protein of the instant invention.

12) Claims 5 to 11 and 14 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by the Dubin et al. patent (6,455,278 B1). Dubin et al. provided a written description of an isolated cDNA encoding a protein identified therein as hVR3 and having an amino acid sequence (SEQ ID NO:3) which is identical to SEQ ID NO:2 of the instant application.

In so far as claim 14 recites a "diagnostic kit", a preamble which constitutes nothing more than a statement of intended used can not distinguish a claimed composition from a prior art composition that otherwise meets all of the material limitations of a claim. See M.P.E.P. 2111.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John D. Ulm whose telephone number is (571) 272-0880. The examiner can normally be reached on 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on (571) 272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOHN ULM
PRIMARY EXAMINER
GROUP 1800